

REMARKS

Claims 3-5, and 7-12 are pending. By this amendment, claims 3-5 have been amended, new claims 7-12 have been added, and claims 1, 2, and 6 have been cancelled without prejudice or disclaimer. The amendment of claims 3-5 is supported, for example, by original claims 1, 3, and 6, paragraphs [0014] to [0024], and [0028] to [0030], and Fig. 1. New claim 7 is supported, for example, by paragraphs [0029], and [0039] to [0041], and original claim 3. Exemplary support for new claims 8 to 10 is provided by paragraph [0032] and Fig. 1. Support for new claims 11 and 12 is found, for example, in paragraph [0035]. No new matter has been introduced.

Errors in Declaration

It is noted that the Declaration contains an incorrect Japanese priority application number and filing date, and incorrect title, but the Official Filing Receipt contains the correct data. To remedy the errors in the Declaration, an Application Data Sheet (ADS) is being submitted concurrently herewith.

Claim Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 2-6 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This rejection is respectfully traversed.

The Examiner maintains that claims 2, 3, and 5 are unclear with respect to the amount of each acid component because the concentration of the acids used to make the mixture is not set forth. The Examiner asserts that phosphoric acid is an aqueous solution of H_3PO_4 and it would be unclear whether the amount of 30% by weight or greater refers to H_3PO_4 or an aqueous

solution thereof. The Examiner further states that similar concerns pertain to the hydrofluoric acid and the nitric acid.

However, phosphoric acid is commercially available as a 100% solid. Furthermore, the claims have been amended to clearly recite that the amounts of the acid are based upon 100% by weight of the aqueous acid etching solution. Those skilled in the art would know that, for example, 30% by weight phosphoric acid, based upon 100 percent by weight of the aqueous acid etching solution means that the weight of H_3PO_4 is 30, based upon the weight of the entire solution being 100. Those skilled in the art would know how to obtain such a 30% by weight phosphoric acid solution using commercially available phosphoric acid in solid form or dissolved water. For example, it is possible to prepare an aqueous acid etching solution containing phosphoric acid in an amount of 30 percent by weight, using raw materials having different concentrations of phosphoric acid. For example, if solid phosphoric acid 100 percent by weight is used, 30 parts by weight may be employed per 100 parts by weight of the entire solution. On the other hand, if a commercially available phosphoric acid solution which is 60 percent by weight phosphoric acid (H_3PO_4) is used, the 40% by weight water contained in the phosphoric acid solution is taken into account when preparing the aqueous acid etching solution so as to obtain a concentration of phosphoric acid (H_3PO_4) in an amount of 30% by weight, based upon the weight of the aqueous acid etching solution.

Similarly, one of ordinary skill in the art would know to employ certain forms of other acids that are commercially available to obtain an aqueous acid etching solution with the claimed amounts of phosphoric acid, hydrofluoric acid and nitric acid, based upon the weight of aqueous acid etching solution. For example, one of ordinary skill in the art could employ commercially available fuming nitric acid and a commercially available highly concentrated solution of

hydrofluoric acid, and solid phosphoric acid, and water as needed to obtain an aqueous acid etching solution which is mainly composed of hydrofluoric acid and nitric acid, and contains phosphoric acid in an amount equal to or more than 30 percent by weight, based upon 100 percent by weight of the aqueous acid etching solution.

Claim 6 is rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite because this claim recites a dripping process which is contrary to the immersion process of parent claim 3. Claim 6 has been incorporated into claim 3, and claim 3 clearly recites that the acid etching is performed by a spincoating method, in which the acid etching solution is dripped on the silicon wafer, whereas the alkali etching is performed by immersing the silicon wafer into the alkali etching solution. Accordingly, there is no contrary recitation in the claim because different etching solutions are employed differently.

Reconsideration and withdrawal of the rejection is respectfully requested.

Rejections under 35 U.S.C. §§ 102 and 103(a)

Claim 1 is rejected under 35 U.S.C. §102 as being anticipated by WO 2005/055302 to Koyata et al (“WO ’302”). Claims 2-6 are rejected under 35 U.S.C. §103(a) as being unpatentable over WO 2005/055302 to Koyata et al (“WO ’302”) or under 35 U.S.C. §102 as being anticipated by WO 2005/055302 to Koyata et al (“WO ’302”). These rejections are respectfully traversed.

Koyata et al does not teach or suggest an etching process in which the alkali etching is performed after the acid etching, the acid etching is performed by a spin-coating method, the alkali etching is performed by a dipping method, and the acid etching solution contains phosphoric acid in an amount equal to or more than 30 wt%, based upon 100 percent by weight

of the aqueous acid etching solution. In applicants' method flatness is maintained after lapping, and at the same time, surface roughness is reduced as shown in the Examples and Comparative Example and Figs. 2-4. Furthermore, the method of the present invention can obtain a good flatness and lessen the rear surface roughness of a wafer having a mirror-surface polished front surface.

Furthermore, the Koyata et al reference (WO'302) is not prior art as to applicants claimed invention. The present application is entitled to its International filing date of October 28, 2004. Under U.S. patent law, the only prior art date to which WO'302 is entitled is its publication date of June 16, 2005. Accordingly, WO'302 does not qualify as prior art. The filing date of WO'302 of December 3, 2004 does not predate the International filing date of the present application and further does not qualify as a prior art date in the U.S. because WO'302 was not published in English.

Reconsideration and withdrawal of the rejections is respectfully requested.

CONCLUSION

For the reasons discussed above, it is respectfully submitted that this application is in condition for allowance and the rejections should be withdrawn. Favorable consideration with early allowance of the application is most earnestly requested.

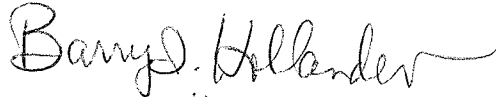
If the Examiner has any questions, or wishes to discuss this matter, please call the undersigned at the telephone number indicated below.

A Supplemental Information Disclosure Statement is being filed concurrently herewith.

U.S. Application No. 10/561,821
Amendment
Docket No. P35790

It is not believed that any fees are due with this amendment. However, any additional fees should be charged to, or any overpayment in fees should be credited to, Deposit Account No. 19-0089 (P35790).

Respectfully Submitted,
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Enc. Application Data Sheet (ADS)